

**MEMORANDUM**

**RE: Scope of Work for Soil Survey at 160 East Illinois Street, Chicago, Illinois—
GeoSyntec Project No CHE8164**

To: US Environmental Protection Agency, Region V

**From: GeoSyntec Consultants, on behalf of the Owners of the Subject Property,
Orange Blue LLC**

**Date: May 11, 2005
Revised May 23, 2005**

This Scope of Work is prepared to describe radiological screening work to be conducted at the above-referenced site. That screening work is to be done in response to an Agreement and Order of Consent which is being prepared between the USEPA and the Owners of the subject site. This Scope of Work is anticipated to be part of an Action Memorandum which will be included with the Order that may be issued from USEPA specifying the work to be completed under that Order. A more detailed Work Plan will be developed in response to the Order, describing the work to be done, including appropriate equipment to be used, applicable health and safety measures, surveying, sampling, and analytical methods, and required documentation.

The subject property at 160 E. Illinois Street in Chicago, Illinois, is immediately adjacent to and across an alley from the Lindsay Light Building at 161 E. Grand Avenue. Industrial use of that property and several vicinity properties by Lindsay Light and Chemical Company in the 1910s through mid-1930s resulted in residual contamination from thorium, a radioactive element. The majority of the identified impacted properties have been remediated in the last 10 years. The subject property has no history of either use by Lindsay Light or evidence of radiological impacts.

1. Existing Conditions

The building formerly at the subject site has been demolished and the demolition debris has been removed. The basement floor slab has been removed and the column foundation slabs have been removed. At present the foundation walls and footings surrounding the perimeter of the site remain in place.

The building was surveyed for radioactivity before demolition was completed. The highest readings were recorded adjacent to the exterior brick walls, and ranged as high as 20,000 counts per minute (CPM). Two spots, each approximately 6 to 12 inches in diameter, were noted in the floor surveys where readings were somewhat above the surrounding floor readings. Those readings were 13,600 and 12,500 CPM on the second

and sixth floors, respectively. Those areas were determined by USEPA to be indicative of thorium contamination, but because of the size of the contamination and associated risk, it was deemed acceptable to continue building demolition. In addition, building timbers proposed to be salvaged were surveyed for thorium contamination. The timbers surveyed were deemed not to be radioactively impacted. Data regarding survey and monitoring work done to date are provided as a separate document.

The basement slab was also surveyed before removal. The slab had been damaged during the demolition process and by the demolition and removal equipment prior to the removal of the slab. No areas of elevated radioactivity were noted, beyond those that could be attributed to naturally occurring radioactivity in the brick rubble on the site.

Following removal of the basement slab and the column foundation slabs, the resulting shallow pits were surveyed for elevated radioactivity. No areas of elevated radioactivity were detected in these surveys.

2. Purpose and Objectives

The purpose of this Scope of Work is to describe the proposed method for surveying of soil surrounding the subject site as part of the construction in progress at the site. The soil to be surveyed is located outside the actual site property lot lines shown on the attached survey, but will be exposed during a variety of construction activities related to the proposed construction. These activities include the removal of the existing foundation walls located at the property line, utility excavations in the adjacent rights-of-way, and removal of the sidewalks and alley pavement adjacent to the site.

The objective of this removal and monitoring work is to identify and remove or document the absence of any radiologically impacted soil, so as to allow the work on construction of the proposed development to proceed without need for further monitoring for radioactivity during construction.

3. General Scope of Work

The general Scope of Work consists of three separate but related tasks. These are:

- Excavate and survey the soil outside the existing foundation walls that is required to be removed in order to construct the new foundation elements. Also, survey beneath the existing foundation footings upon their removal.
- Excavate and survey soil that is required to be removed in order to provide clean corridors for the installation of utilities for the proposed development.
- Remove and survey beneath the sidewalk and alley rights-of-way adjacent to the site.

3.1 Excavate and Survey Scope of Work

The performance of the excavation and survey work is proposed to be conducted under one of two options. The decision as to which option will be advanced will be dependent on the approved permit conditions from the City of Chicago. Both options are presented in the following paragraphs. Conceptual drawings of the two options for the excavation around the foundation wall and footing are included with this Scope of Work.

Option A. Foundation Wall Removal and Survey

One option is to saw-cut the foundation wall and remove it in pieces as the excavation and survey work proceeds. The length of the sections to be removed will likely be specified in the permit from the City. It is anticipated to be removed in 5 to 10 foot lengths.

The exposed soil in the wall behind the foundation wall and beneath the footing will be surveyed using an unshielded 2 x 2 inch NaI detector. 100 percent of the exposed soil will be surveyed. The exposed soil will then be excavated back in lifts not exceeding 18 inches to the slope allowed by the City permit, anticipated to be from 1V:1H to 1V:2H.

Option B. Trench and Survey Exterior Side of Foundation Wall

The second option is to excavate on the exterior of the foundation wall and survey the soil, without removing the wall. This option allows for any radiologically impacted material that may be encountered to be removed without potentially mixing the radiologically impacted material with clean soil within the interior of the site where no impacts have been documented.

The trench would be excavated in lifts not exceeding 18 inches. To the extent allowed by safety, the trench floor and sides would be surveyed by personnel in the trench. As needed, the trench wall can be sloped back or the survey can be done by lowering the probe into the trench to obtain readings.

Under Option B, the removal of the foundation wall and footings will require a second sequence of surveying in order to document the absence of impacted materials beneath the foundation. It is likely that removal and survey work would be conducted shortly after the completion of the survey of the exterior soils.

Under either Option A or B, if radiological impacts are evident, the area will be cordoned off and an exclusion zone established. Appropriate health and safety restrictions will be implemented, including PPE, frisking of all personnel and equipment exiting the exclusion zone and perimeter air monitoring. The impacted material will be loaded into Supersacks to be retained for subsequent off-site transport and disposal. The removal of radiological materials will extend to either a) the limits of impacted material if feasible

within the allowable limits of the excavation, or b) to the permitted limits of excavation such as the curb line or the adjacent foundation wall or footing. Any material above the clean-up criterion that remains after completing the removal effort will be documented as to the instrument reading in counts per minute of the material remaining, the specific location with regard to horizontal and vertical dimensions, and a sample will be taken to characterize the material. It is understood that in the case of extremely high readings, some additional removal may be requested by USEPA, and such removal will need to be coordinated with City requirements.

The excavation will proceed sequentially around the site perimeter as follows: The alley side will be removed first, due to that location being the area of greatest concern as a result of the proximity to the Lindsay Light Building. The Illinois Street side will be removed second due to limitations in access resulting from the viaduct and piers supporting the elevated portion of the street. The St. Clair Street side will be removed last in order to preserve access to the rest of the site via that side and entry into the basement.

Upon completion of the excavation and survey work, by either option A or B, the entire excavation including the former basement will be backfilled to approximately one foot below street grade. Backfill will be with either crushed stone or crushed concrete. No additional surveying will be required for any future excavation conducted within the basement or the limits of the area excavated and surveyed and found to be clean.

3.2 Excavate and Survey Proposed Utility Corridors

At the locations where utilities will be installed from the right-of-way into the building, the utility trenches may extend outside the area of soil excavated and surveyed as part of the foundation wall removal. At those locations, trenches will be excavated to the maximum dimensions anticipated necessary for the future utility corridors. The trenches will be excavated in lifts not to exceed 18 inches in thickness, and will be surveyed over their entire length and depth as they are excavated. Any impacted soil detected in the trenching will be removed and retained in Supersacks for subsequent off site disposal.

Upon completion of the trenching and any necessary removal, the trenches will be backfilled with clean crushed stone. Any future excavation for utilities will be limited to these stone-filled trenches and no additional survey work will be necessary.

In the event that radiologically impacted soil is encountered, it is not intended to remove more soil than is required for the excavation of the utility trench. That is to say, the impacted material will not be "chased". Any impacted material detected that remains in the trench walls or floor will be documented as to location, radiation count measured, and a sample collected for laboratory analysis.

3.3 Remove Sidewalks and Alley Pavement and Survey

The sidewalks and some portion of the alley pavement will require removal and replacement as part of the proposed construction. Those areas will be surveyed as the pavement is removed and any areas of impacted will be removed and managed as with the foundation excavation. That is to say, impacted soil will be removed to the limits of permitted excavation or to the limits of identified radiological impacts.

It is anticipated that this removal of the sidewalks and alley pavement will occur concurrent with or shortly after the foundation excavation. Those areas will then be covered with aggregate for the duration of the construction, with the permanent paving to be placed nearer the completion of the construction.